

Abstract

Magnetic tunnel junction device and read/write method of such a device

The device successively comprises a first electrode (12), a magnetic reference layer (1), a tunnel barrier (3), a magnetic storage layer (4) and a second electrode (13). At least one first thermal barrier is arranged between the storage layer (4) and the second electrode (13) and is formed by a material having a thermal conductivity lower than $5\text{W/m/}^{\circ}\text{C}$. A second thermal barrier can be formed by a layer arranged between the first electrode (12) and the reference layer (1). A write phase of the method comprises flow of an electric current (I_1), through the tunnel junction, from the storage layer (4) to the reference layer (1), whereas a read phase comprises flow of an electric current (I_2) in the opposite direction.

(Figure 5)